

AMENDMENTS TO THE DRAWINGS

In accordance with the request of the Examiner, Figure 1 has been corrected to include a designation as “Prior Art,” since it depicts only that which is found in the prior art.

Attachment: Replacement Sheet

REMARKS

By this Amendment, claims 1, 11, and 12 are amended, withdrawn claims 7-10, 13, and 14 are canceled without prejudice or disclaimer, and new claim 17 is added. Claims 1-6, 11-12, and 15-17 are pending for examination.

Objections to the Drawings

In response to the Examiner's objection to Figure 1, the figure has been corrected to bear the designation "Prior Art."

The drawings were also objected to in that they contain the reference numeral 8, which is said not to be found in the description. In response, Applicant respectfully directs the Examiner's attention to paragraph 0055, which refers to "stringer 8." In that reference numeral 8 is thus used in the description, Applicant requests this objection be withdrawn.

Objections to the Specification

The abstract of the disclosure was objected to in that the word "means" is used in the last sentence. In response, the abstract has been amended to eliminate use of "means." Applicant accordingly requests that this objection be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-5, 11, 12, 15, and 16 were rejected as anticipated by Booth '686. The Examiner indicates that the recitation "metallic" in the independent claims was given no patentable weight because it occurs in the preamble and not in the body of the claims. In response, the recitation "metallic" has been moved to the body of each independent claim, so that the claimed wing skin is now positively required to have first and second metallic surfaces. In

that Booth '686 describes only a structure formed entirely of wood, Applicant submits that it cannot anticipate the claims as amended.

Further, specifically with regard to claim 2, Applicant notes that Booth '686 does not disclose a monolithic (that is, one piece) wing skin structure having a multiplicity of strips on a surface thereof, but rather a wing skin formed from separate strips of wood. In that Booth '686 does not disclose a monolithic wing skin, it cannot anticipate claim 2.

In view of the foregoing, Applicant respectfully submits that claims 1-5, 11, 12, 15, and 16 are not anticipated by Booth '686. Accordingly, Applicant requests that this rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-5, 11, 12, 15, and 16 were alternatively rejected as obvious over Booth '686 in view of Official Notice taken by the Examiner that metal has increased strength over wood. It was said that it would have been obvious to one of ordinary skill in the art to make the wooden strips of Booth '686 from metal since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Further, claim 6 was rejected as obvious over the combination specified for claims 1-5 in further view of Dornier '765. Applicant respectfully traverses these rejections and requests that they be withdrawn.

As an initial matter Applicant notes that metal is today recognized as having superior performance over wood for almost all aerospace applications. In fact, the use of wood as a structural component in modern aircraft is so uncommon that one of ordinary skill in the art would not even begin to consider references such as Booth '686 dating back to the early 20<sup>th</sup> century for forming *wooden* wing skins when looking to improve modern metallic aircraft wing skins.

Additionally, Booth '686 is directed to solving an entirely different problem than the present invention. Booth '686 addresses concerns involved with fitting "carvel" (e.g. planks laid edge-to-edge) wooden skins to structures having curved frame surfaces. Specifically, it teaches wooden strips configured with a "comparatively narrow width" relative to thickness so as to enable bending of the strips both edgewise and facewise to conform with a curved frame without buckling, thereby alleviating the previous need to taper the width of the strips.

In contrast, the present invention seeks to address time and cost issues involved with complex machine faceting of the inner surface of a metal wing skin. See specification, paragraph 0007. Before the present invention, modern metallic wing skins were designed and produced by laying out a multiplicity of facets, each having a constant gradient, which were then machined on the interior surface of the skin. The number of facets that could be practically employed, however, was effectively limited by the significantly increased process duration caused by the increased complexity. See specification, paragraphs 0003 and 0004. The present invention addresses this problem by replacing the facets with a multiplicity of strips extending in substantially the same direction, which are machined on the interior surface of the skin using, for example, known prior art machine tools. The number of strips used may be significantly greater than the typical number of facets that would have been used in the prior art. In embodiments of the invention, there are manufacturing time savings as well as significant mass savings without compromising the load carrying capacity of the wing. See specification, paragraph 0007.

Even if Booth '686 had some teaching or suggestion that one of ordinary skill in the art would consider relevant to metal machining methods (and Applicant respectfully submits it does not), modern metallic wing skins are not bent in an edgewise direction to conform with a curved frame so as to present the buckling problem addressed by Booth '686. Without this buckling problem, Booth '686 provides no reason for considering strips at all, let alone strips machined on the inner surface of a wing skin as in the present invention. Consequently, Booth

'686 is not a reference that would have been consulted by one of ordinary skill in the art, or if consulted that would have provided any teaching or suggestion relevant to the present invention.

In fact, Booth '686 teaches away from the present invention by recommending increasing strip thickness relative to strip width to alleviate buckling and also to facilitate joining of adjacent boards. See Booth '686, p. 2, ll. 25-36, 84-90. This would have a tendency to increase the overall mass of the skin, rather than enabling it to be reduced as is an object of the wing skin of the present invention. See specification, paragraph 0007.

Relative to dependent claim 2 and new claim 17, each require that the wingskin is a monolithic metal structure. Booth '686 deals entirely with a wooden skin made from separate strips laid edge-to-edge. There is no suggestion at all of a monolithic skin with strips formed on an inner surface as in the present invention. Furthermore, modification of the skin of Booth '686 to make it monolithic would significantly affect the mechanical properties of the wing skin. This is directly contrary to the teachings of Booth '686 of discrete and separate strips to alleviate buckling when the strips are bent edgewise, and would render the strips of Booth '686 unsuitable for their intended purpose.

Based on the foregoing, Applicant respectfully submits that independent claims 1, 11, 12, and 17 and all claims dependent therefrom are patentable over the prior art of record in this case. Applicant accordingly requests that the rejections be withdrawn.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Bradley J. Thorson', with a stylized flourish at the end.

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